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SURFACE WATER QUALITY STANDARDS
(REVISED OCTOBER, 2001)

PREFACE

The Water Quality Standards and Criteria set forth in this publication are an important element in Connecticut's clean water program. The Standards set an overall policy for management of water quality in accordance with the directive of Section 22a-426 of the Connecticut General Statutes. In simple terms the policies can be summarized by saying that the Department of Environmental Protection shall:

- Protect surface and ground waters from degradation.
- Segregate waters used for drinking from those that play a role in waste assimilation.
- Restore surface waters that have been used for waste assimilation to conditions suitable for fishing and swimming.
- Restore degraded ground water to protect existing and designated uses.
- Provide a framework for establishing priorities for pollution abatement and State funding for clean up.
- Adopt standards that promote the State's economy in harmony with the environment.

There are three elements that make up the Water Quality Standards. The first of these are the Standards themselves. This is the text of the policy statements (pages 4 through 10) which discuss issues such as classification of different water resources according to the desirable use, anti-degradation, allowable types of discharges, the fundamental principles of waste assimilation, and a variety of other subjects. The second element, also contained in this document, are the Criteria (pages 11 through 24). These are descriptive and numerical standards that describe the allowable parameters and goals for the various water quality classifications. The final element is the Classification Maps that show the Class assigned to each surface and groundwater resource throughout the State. These maps also show the goals for the water resources, and in that manner provide a blueprint and set of priorities for our efforts to restore water quality.

These three elements comprise the Water Quality Standards and are adopted using the public participation procedures contained in Section 22a-426 of the Connecticut General Statutes. The Standards, Criteria and Maps are reviewed and revised roughly every three years. Any change is considered a revision requiring public participation. The public participation process consists of public meetings held at various locations around the State, notification of all chief elected officials, notice in the Connecticut Law Journal and a public hearing. The Classification Maps are the subject of separate public hearings which are held for the adoption of the map covering each major drainage basin in the State.

As with any complex program, it is always difficult to anticipate the questions that the public may have about either proposed or adopted standards. The staff of the Planning and Standards Division of the Bureau of Water Management are the best source of information about these WQS and are always willing to provide answers to your questions. They may be contacted by writing to:

Assistant Director
Planning and Standards Division
Bureau of Water Management
Department of Environmental Protection
79 Elm Street
Hartford, Connecticut 06106-5127

The WQS do not stand alone; rather, they are one critical element in our program to protect and improve water quality. The WQS are written in response to, and in concert with, the principles of Connecticut's Clean Water Act, which is in Chapter 446k of the Connecticut General Statutes. The Statutes set the broad outline and legal framework for our entire program. They establish the authorities and procedures for the WQS, for permitting discharges to the waters of the State and for the abatement of pollution. Within the framework of the Statutes, the Water Quality Standards establish broad policy and objectives to meet the statutory goals. These objectives are then carried out by means of specific procedures and requirements of statutory sections and even more detailed regulations. These include Statutes and Regulations for the permitting of discharges to the waters of the State, hazardous materials management, solid waste management, water diversions, structures, dredging, wetlands and others.

As an example of how these pieces fit together the following may be of assistance:

- Section 22a-430 of the Connecticut General Statutes allows and sets procedures for the permitting of discharges of treated wastewater to the waters of the State.
- The Water Quality Standards set forth the types of treated wastewater discharges that can be allowed in various water quality classifications in order to meet the statutory goals. In addition, the Water Quality Standards provide the principles of waste assimilation and the goals for the receiving waters.
- If the type of discharge is allowed, then the details of application procedures and requirements for treatment, monitoring and reporting of the specific discharge are provided by Sections 22a-430-1 through 4 of the Regulations of Connecticut State Agencies.

The Water Quality Standards provide policy guidance in many different areas, all of which are subject to detailed statutory and regulatory requirements. Some examples are as follows:

- Decisions on the acceptability of a type of discharge to a specific water resource.
- Any decision on the siting of a landfill.
- Decisions on the type of remediation and priority for the cleanup of hazardous waste sites.
- Decisions on the priority assigned to improvements of municipal sewerage systems and the priority for funding such projects.
- Decisions on Water Quality Certification pursuant to Section 401 of the Federal Clean Water Act, which are required for any federally permitted activity which results in a point or nonpoint source discharge to a surface water resource

If you have further questions about the Water Quality Standards please do not hesitate to contact the staff.

I. INTRODUCTION

Section 22a-426 of the Connecticut General Statutes requires that the Commissioner of Environmental Protection adopt standards of water quality consistent with the federal Clean Water Act. The Standards establish a goal of restoring and maintaining the chemical, physical, and biological integrity of Connecticut surface waters, and wherever attainable, providing for the protection and propagation of fish, shellfish, and wildlife and provide for recreation in and on the water. The purpose of these Standards is to provide clean and objective statements for existing and projected water quality and the general program to improve Connecticut's water resources. They also serve to qualify the state and its municipalities for available federal grants for water pollution control. Section 22a-426 of the Connecticut General Statutes mandates these standards shall:

(1) Apply to interstate waters or portions thereof within the State.
(2) Apply to such other waters within the State as the Commissioner may determine is necessary.
(3) Protect the public health and welfare and promote the economic development of the State.
(4) Preserve and enhance the quality of State waters for present and prospective future use for public water supplies, propagation of fish and aquatic life and wildlife, recreational purposes and agricultural, industrial and other legitimate uses.
(5) Be consistent with the health standards as established by the Department of Public Health.

Water Quality Classifications, based on the adopted Water Quality Standards, establish designated uses for surface and ground waters and identify the criteria necessary to support those uses. The designated use and criteria serve to focus the department's water quality management activities, including establishment of water quality based treatment controls and strategies required by the federal Clean Water Act.

Section 303 of the federal Clean Water Act requires state adoption of surface Water Quality Standards and their review and modification at least once every three years. Connecticut first adopted Water Quality Standards in 1967. Federal law defines Water Quality Standards as the identification of water quality goals for each water resource through the assignment of designated uses to be made of the water and by setting criteria necessary to protect the uses.

Federal regulations specify that Water Quality Standards should, wherever attainable, provide water quality for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water, taking into consideration their use and value for public water supplies, propagation of fish, shellfish and wildlife, recreation in and on the water and agricultural, industrial and other purposes including navigation.

Although federal law requires adoption of Water Quality Standards for surface waters, Water Quality Standards for ground waters are not subject to federal review and approval. Connecticut's Standards recognize that surface and ground waters are interrelated and address the issue of competing use of ground waters for drinking and for waste water assimilation. These Standards specifically identify ground water quality goals, designated uses and those measures necessary for protection of public and private drinking water supplies; the principal use of Connecticut ground waters.

II. SURFACE WATER QUALITY STANDARDS

1. It is the State's goal to restore or maintain the chemical, physical, and biological integrity of surface waters. Where attainable, the level of water quality that provides for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water shall be achieved.

2. Water quality necessary to support existing and designated uses such as uses for propagation of fish, shellfish, and wildlife, recreation, public water supply, agriculture and industrial purposes shall be restored and maintained.

3. Surface waters with an existing quality better than the criteria established in these Water Quality Standards shall be maintained at their existing high quality, unless the Commissioner finds, after adequate opportunity for intergovernmental review and public participation, that allowing lower water quality is necessary to accommodate overriding statewide economic or social development, and that existing and designated uses will be fully protected. The implementation procedures for the anti-degradation provisions of these Water Quality Standards are provided in full in Appendix E.

4. For all new and existing discharges to high quality surface waters the Commissioner shall, at a minimum, require National Pollutant Discharge Elimination System (NPDES) discharge permit applicants to meet the highest applicable standards of performance promulgated pursuant to the Federal Clean Water Act as well as Sections 22a-426, 22a-430, and 22a-436 of the Connecticut General Statutes, and require additional treatment measures deemed necessary to prevent pollution and maintain high water quality. The Commissioner shall also require the use of appropriate Best Management Practices for control of point and non-point source discharges, dredging activity, and the discharge of dredged or fill materials, to high quality surface waters.

5. If the Commissioner designates a high quality surface water as an Outstanding National Resource Water pursuant to federal regulations at 40 CFR 131.12(a) the high water quality shall be maintained and protected. The lowering of water quality is prohibited for such surface waters except where activities limited in time and scope will result in only temporary and insignificant changes in water quality and the activities will not result in water quality less than necessary to protect existing and designated uses.

6. Standard (1) shall be met except where (1) a use attainability analysis prepared pursuant to federal regulation at 40 CFR 131.10(g) and (j) demonstrates that the surface water has been irreparably altered to the extent that certain designated uses have been permanently lost; and (2) quality criteria necessary to protect all other existing, and designated uses of the surface water have been adopted by the Commissioner as a revision to these Water Quality Standards in accordance with Section 22a-426 of the Connecticut General Statutes. Periodic re-examination of such designated use decisions shall be performed as required by federal regulations (40 CFR 131.20).

7. Any person or municipality requesting a change in Water Quality Classification shall demonstrate to the Commissioner that the proposed new Classification is consistent with all existing or designated uses made of, or presently possible in, such surface waters. Any such change in a Water Quality Classification shall be considered a revision of these Water Quality Standards and subject to the public participation requirements of Section 22a-426 of the Connecticut General Statutes. The Commissioner

will not approve a reclassification which is not consistent with Standards 3 or 4 of these Water Quality Standards.

8. Water Quality Criteria do not apply to certain conditions brought about by natural causes. Natural hydrologic and geologic conditions may cause excursions from established criteria. The meaning of the word 'natural' is not limited to only those conditions which would exist in water draining from pristine land. Conditions which exist in the surface water, in part due to normal uses of the land, may be considered natural, provided best management practices are used. It shall not be considered normal use of the land if excursions from established Criteria adversely impact an existing or designated use.

9. Discharges to surface waters shall be limited as follows:

(A) Class AA, A and SA surface waters: discharges may be permitted by the Commissioner from public or private drinking water treatment systems, dredging activity and dredge material dewatering operations, including the discharge of dredged or fill material and clean water discharges. In Class AA surface waters such discharges shall be subject to the approval of the Commissioner of Health Services. The Commissioner may authorize other discharges to surface waters with a Classification of SA, A or AA provided the Commissioner finds such discharge will be of short duration and is necessary to remediate surface water or ground water pollution. Any such discharge shall be treated or controlled to a level which in the judgment of the Commissioner, protects aquatic life and public health.

(B) Class B and SB surface waters: discharges may be permitted for all those allowed in Class AA, A and SA surface waters, cooling water discharges, discharges from municipal and industrial wastewater treatment systems and other discharges subject to the provisions of Section 22a-430 of the Connecticut General Statutes.

(C) The designation of surface water as Class C/B, D/B, SC/SB or SD/SB shall not be a reason for authorizing a new discharge that would prevent the attainment of Class B or Class SB designated uses and quality criteria.

(D) The designation of a surface water as Class B/AA, B/A, C/A, SB/SA, or SC/SA shall not be a reason for authorizing a new discharge that would prevent the attainment of Class AA, A or SA Water Quality Criteria.

10. The Commissioner may, on a case-by-case basis, establish zones of influence when permitting discharges to surface waters under Section 22a-430 of the Connecticut General Statutes in order to allocate a portion of the receiving surface waters for mixing and assimilation of the discharge. Unless otherwise indicated in these Water Quality Standards, the applicable Water Quality Criteria apply outside the zone of influence for a discharge. Establishment of a zone of influence shall not preclude attainment of any existing or designated uses of the receiving surface waters. The area and/or volume of receiving water allocated to zones of influence shall be determined based on the unique physical, chemical and biological characteristics of the receiving surface water body. The Commissioner may require Permit applicants to provide information on receiving surface water and waste water characteristics including the volume of flow and area required for mixing and assimilation of waste. The zone of influence for assimilation of a thermal discharge shall be limited to the maximum extent possible. As a guideline, the zone of influence for assimilation of a thermal discharge shall be no

greater than 25% of the cross-sectional area or volume of flow of the receiving water. In establishing a zone of influence the Commissioner shall consider without limitation:

(A) The characteristics of the discharge, such as its volume, strength, temperature and the presence of any substances in the discharge, potential bioaccumulation or bioconcentration of these substances in aquatic organisms, and the potential for any substances, either singly or in combination with other substances present in the discharge or receiving surface water body to result in an unacceptable risk to human health or the environment.

(B) An allowance for a continuous zone of passage for free swimming and drifting organisms.

(C) The effect of the discharge on spawning grounds or nursery areas of sensitive aquatic organisms or areas utilized by aquatic organisms for shelter and living space.

(D) The effect of the discharge on the aesthetic quality of the receiving water including but not limited to the potential to cause objectionable deposits, floating debris, oil, scum, and other materials that form nuisances or produce objectionable color, odor, taste, or turbidity, or that may attract undesirable aquatic life or wildlife, or result in the dominance of nuisance species.

(E) The location of other discharges in the receiving surface water body to insure that the cumulative effect of adjacent zones of influence will not significantly reduce the environmental value or preclude any existing or designated uses of the receiving surface water.

Assessment of environmental value will be based on the characteristics of the receiving surface water including but not limited to: type of water body, velocity, depth, number and type of aquatic habitats, migration patterns, nature of the food chain, level of productivity, water temperature, ability of tributaries to provide biological recruitment, presence of endangered species and value to human uses (aesthetic, commercial, sport fishing and recreational uses).

11. The 7Q10 is the minimum flow to which these Water Quality Standards for surface waters apply, except when a surface water has been historically regulated by dams or water withdrawals sanctioned by law to result in flows below that level. In such cases these Water Quality Standards apply to that low flow determined by the Department's Minimum Flow Regulations as amended Section 26-141a-1, et seq. of the Regulations of Connecticut State Agencies); the Department's Diversion Permit Program (Section 22a-365 through 22a-378 of the Regulations of Connecticut State Agencies); or the Federal Energy Regulatory Commission's hydropower licensing process (Federal Power Act 16 USCS SEC 791a et seq). Maintaining a long-term flow of 7Q10 or less may result in significant stress on the physical and biological quality of surface waters. In those surface waters at, near or below the naturally occurring 7Q10 flow, more stringent Water Quality Criteria may be required to achieve and maintain existing and designated uses. The Commissioner may approve discharge limitations based on minimum average daily flow in excess of 7Q10 conditions, provided the Commissioner is satisfied that special measures will be implemented during low flow conditions which provide protection to the environment at least as effective as that protection which would pertain if limitations were based solely on 7Q10 conditions.

Surface waters which are influenced by tidal forces or which experience short-term variation in flow due to periodic or irregular water release from upstream diversions or other causes may require special consideration by the Commissioner when issuing discharge permits under the provisions of Section 22a-430 of the Connecticut General Statutes in order to protect existing and designated uses, including consideration of the minimum flow to which these Water Quality Standards apply.

12. The Commissioner, pursuant to Chapter 446k of the Connecticut General Statutes and regulations adopted thereunder, will regulate discharges to the surface waters to assure that such discharges do not cause acute or chronic toxicity to freshwater and marine aquatic life and wildlife, do not impair the biological integrity of freshwater and marine ecosystems and do not create an unacceptable risk to human health.

(A) In making a determination under Chapter 446k of the Connecticut General Statutes as to whether a discharge will or can reasonably be expected to cause pollution of surface waters, the Commissioner shall consider the numeric criteria for the toxic pollutants listed in Appendix D.

(B) The Commissioner may amend the numeric criteria for the toxic pollutants listed in Appendix D of these Water Quality Standards in accordance with the procedures specified in Section 22a-426 of the Connecticut General Statutes on his or her own initiative, or upon request of any person or municipality that site-specific water quality criteria be adopted or amended, provided such request is supported by sound scientific and technical evidence demonstrating the following:

1. Conditions at the specific site differ significantly from those used in establishing the statewide criteria.

2. The proposed site-specific criteria are sufficiently stringent to protect all existing and designated uses of the water body.

3. The proposed site-specific criteria are derived in a manner consistent with sound scientific and technical principles, giving consideration to all applicable federal guidance.

13. The Commissioner may adopt or amend criteria for any surface water or class of water, in accordance with the procedures specified in the Connecticut General Statutes (Section 22a-426) and in paragraphs (1), (2), and (3) of Standard 12(B) of these Water Quality Standards, provided such change is supported by sound scientific and technical evidence, and existing and designated uses are fully protected.

14. Surface waters and sediments shall be free from chemical constituents in concentrations or combinations which will or can reasonably be expected to: result in acute or chronic toxicity to aquatic organisms or otherwise impair the biological integrity of aquatic or marine ecosystems outside of any dredged material disposal area or areas designated by the Commissioner for disposal or placement of fill materials or any zone of influence allowed by the Commissioner, or bioconcentrate or bioaccumulate in tissues of fish, shellfish and other aquatic organisms at levels which will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odors or health risks to human

consumers of aquatic organisms or wildlife unless such sediments are capped with material suitable for unconfined, open water disposal as an appropriate means of ensuring consistency with this standard as approved by the Commissioner in writing. In determining consistency with this Standard, the Commissioner shall at a minimum consider the numeric criteria listed in Appendix D and any other information he or she deems relevant.

15, Except within dredged material disposal areas or areas designated by the Commissioner for disposal or placement of fill materials, surface waters and bottom sediments shall be substantially free of pollutants that: a) unduly affect the composition of bottom fauna; b) unduly affect the physical or chemical nature of the bottom; or c) interfere with the propagation or habitats of shellfish, finfish and wildlife. Dredged materials disposed of at a dredged materiel disposal area shall not result in: a) floating residues of any sort; b) release of any substance which may result in long-term or permanent degradation of water quality in surface waters overlying or adjacent to the disposal areas; c) dispersal of contaminated sediments outside a dredged material disposal area other than that occurring as a transient plume during disposal operations; or d) biological mobilization and subsequent transport of toxic substances to food chains. The Commissioner may consider Best Management Practices including but not limited to capping the dredged material with material suitable for unconfined open water disposal as appropriate means of ensuring consistency with this standard.

16. Benthic invertebrate criteria may be utilized where appropriate for assessment of the biological integrity of surface waters. The criteria apply to the fauna of erosional or riffle habitats in lotic waters which are not subject to tidal influences.

17. The discharge of radioactive materials to a surface water in concentrations or combinations which would be harmful to human, animal or aquatic life shall not be allowed. The applicable criteria can be found in Title 10, Part 20 of the Code of Federal Regulations.

18. Best Management Practices for control of non-point source pollutants may be required by the Commissioner on a case-by-case basis.

19. Best Management Practices, discharge limitations or other reasonable controls on point and non-point sources of phosphorus and nitrogen, including sources of atmospheric deposition, which contribute to the impairment of any surface water shall be required by the Commissioner on a case-by-case basis as necessary to ensure maintenance and attainment of existing and designated uses.

20. Use of Best Management Practices and other reasonable controls on non-point sources of nutrients and sediment are preferable to the use of biocides for correction of eutrophic conditions.

21. Surface waters identified as potential drinking water supplies in the Long Range Plan for Management of Water Resources prepared and adopted pursuant to Section 22a-352 of the Connecticut General Statutes shall be designated Class AA. The Commissioner may designated other surface waters as Class AA including surface waters that (1) have been designated a proposed drinking water supply in Connecticut's Conservation and Development Policies Plan, (2) have been recommended for future use as a drinking water supply in a water company's water supply plan, (3) the Commissioner has issued a Diversion Permit authorizing use as a drinking water supply, or (4) have been identified in a request from a municipality for designation as a drinking water supply at a public hearing concerning water quality classifications.

22. Section 22a-417 of the Connecticut General Statutes imposes an absolute restriction on the discharge of sewage to Class AA reservoirs and their tributaries. The existence of a discharge to a surface water which occurs outside the State that then flows into the State shall not be considered a valid reason for either relaxing the restriction in Connecticut or changing the Class AA designation. It is a policy of the State to pursue the adoption of compatible Water Quality Standards in neighboring states to assure the protection of Connecticut drinking water supplies.

23. Disinfection shall be required for all treated sewage discharges to surface waters. The period of disinfection shall vary depending on the nature of the receiving surface water as described below:

(A) Continuous disinfection shall be required at all sewage treatment plants located south of Interstate Highway 95 (I-95) to protect shellfish resources.

(B) Disinfection shall be required from May 1 to October 1 at all sewage treatment plants located north of I-95. Seasonal disinfection is intended to protect the sanitary quality of bathing waters, and minimize adverse impacts to aquatic life associated with disinfection. An alternative schedule, including continuous disinfection, may be required if found necessary by the Commissioner to protect existing or designated uses.

(C) For those Class B surface waters located north of Interstate Highway 95 (I-95) and downstream of a sewage treatment plant providing seasonal disinfection as authorized by the Commissioner, criteria for indicator bacteria do not apply during periods when disinfection is not required.

24. The discharge of sewage from boats in all inland fresh waters not amenable to interstate navigation is prohibited. Boat discharges in other surface waters are subject to the legislative provisions of Sections 15-170 through 15-176 of the Connecticut General Statutes and Section 312, entitled Marine Sanitation Devices, of the federal Clean Water Act.

25. Indicator bacteria are used to detect the potential presence of contamination by human or animal wastes. Due to the inherent uncertainty involved in sampling and analytically determining bacteria levels, excedences of water quality criteria does not always indicate a water quality problem and therefore should be investigated by means of a sanitary survey or other appropriate means to determine sources of elevated indicator bacteria levels. (see also Appendix B).

26. Physical obstructions such as dams, which prevent fish migration for spawning and growth, shall not be considered a valid reason for failure to achieve and maintain water quality conditions necessary to support all designated uses of a surface water unless the Commissioner has approved a Use Attainability Analysis documenting that a designated use is not attainable for such surface water.

27. The allowable temperature increase resulting from discharges in the estuarine segments of the Housatonic, Connecticut and Thames Rivers shall be consistent with the criteria for the non-tidal segments.

28. Surface water quality monitoring methods shall be consistent with Title 40 Part 30 of the Code of Federal Regulations or other equivalent monitoring methods approved in writing by the Commissioner.

29. Surface waters which are not specifically classified shall be considered as Class A or Class SA.

30. Watercourses which are contained in drainage conduits or pipes and which are not assigned a specific class are considered to be the class of the water body segment into which they discharge.

31. Where existing water quality may not support the designated uses and quality criteria, the known or presumed existing quality will be identified, followed by the classification (e.g., C/B).

32. Revisions to the Water Quality Standards, including but not limited to the following, shall be subject to the public participation process provided for in Section 22a-426 of the Connecticut General Statutes:

    (A) The adoption of a map which depicts the Water Quality Goals and Classifications assigned to any water resource.

    (B) Any decisions regarding the lowering of water quality in existing high quality surface waters or a change in the Water Quality Classification of any surface water.

    (C) The adoption of any Use Attainability Analysis.

    (D) The adoption or amendment of site-specific water quality criteria.

33. Evaluation of a discharge or discharge of dredged or fill material to wetlands shall include consideration of the manner in which such wetlands support existing and designated uses and protect and maintain downstream water quality.

III. SURFACE WATER CLASSIFICATIONS

INLAND SURFACE WATERS CLASSES AND CRITERIA

CLASS AA

Designated Uses- These surface waters are designated for: existing or proposed drinking water supplies; habitat for fish and other aquatic life and wildlife; recreation; and water supply for industry and agriculture.

Parameter		Criteria
1.	Aesthetics	Uniformly excellent.
2.	Dissolved oxygen	Not less than 5 mg/l at any time.
3.	Sludge deposits-solid refuse- floating solids-oils and grease-scum	None other than of natural origin.
4.	Color	None other than of natural origin.
5.	Suspended and settleable solids	None in concentrations or combinations which would impair designated uses; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of the bottom; none which would adversely impact aquatic organisms living in or on the bottom substrate.
6.	Silt or sand deposits	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity or dredging activity or discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.
7.	Turbidity	Shall not exceed 5 NTU over ambient levels and none exceeding levels necessary to protect and maintain all designated uses. All reasonable controls or Best Management Practices are to be used to control turbidity.

Parameter		Criteria
8.	Indicator bacteria	REFER TO APPENDIX B.
9.	Taste and odor	None other than of natural origin.
10.	pH	As naturally occurs.
11.	Allowable temperature increase	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and, in no case exceed 85 degrees F, or in any case raise the temperature of surface water more than 4 degrees F.
12.	Chemical constituents	None in concentrations or combinations which would be harmful to designated uses. Refer to Standards numbers 10, 12, 13, and 19.
	(a) Phosphorus	None other than of natural origin
	(b) Sodium	Not to exceed 20 mg/l
13.	Benthic invertebrates which inhabit lotic waters	A wide variety of macroinvertebrate taxa should normally be present and all functional feeding groups should normally be well represented. Presence and productivity of aquatic species is not limited except by natural conditions, permitted flow regulation or irreversible cultural impacts. Water quality shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species. Taxa within the Orders Plecoptera (stoneflies), Ephemeroptera (mayflies), Coleoptera (beetles) and Trichoptera (caddisflies) should be well represented.

CLASSIFICATIONS SHOWN ON MAPS

AA	Known or presumed to meet Criteria which support the designated uses.
B/AA or C/AA	May not be meeting Class AA Criteria or designated uses. The water quality goal is achievement of Class AA Criteria and attainment of Class AA designated uses.

CLASS A

Designated Uses - These surface waters are designated for: habitat for fish and other aquatic life and wildlife; potential drinking water supplies; recreation; and water supply for industry and agriculture.

Parameter		Criteria
1.	Aesthetics	Uniformly excellent.
2.	Dissolved oxygen	Not less than 5 mg/l at any time.
3.	Sludge deposits solid refuse – floating solids –oils and grease-scum.	None other than of natural origin.
4.	Color	None other than of natural origin
5.	Suspended and settleable solids	None in concentrations or combinations which would impair designated uses; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of the bottom; none which would adversely impact aquatic organisms living in or on the bottom substrate.
6.	Silt or sand deposits	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity, dredging activity or the discharge of dredged or fill materials provided all reasonable controls or best management practices are used in such activities and all designated uses are protected and maintained.
7.	Turbidity	Shall not exceed 5 NTU over ambient levels and none exceeding levels necessary to protect and maintain all designated uses. All reasonable controls or Best Management Practices are to be used to control turbidity.
8.	Indicator Bacteria	REFER TO APPENDIX B.
9.	Taste and odor	None other than of natural origin.
10.	pH	As naturally occurs.
11.	Allowable temperature increase	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and, in no case exceed 85 degrees F, or in any case raise the temperature of surface water more than 4 degrees F.

Parameter		Criteria
12.	Chemical constituents	None in concentrations or combinations which would be harmful to designated uses. Refer to Standards numbers 10, 12, 13, and 19.
	(a) Phosphorus	None other than of natural origin.
	(b) Sodium	None other than of natural origin.
13.	Benthic invertebrates which inhabit lotic waters.	A wide variety of macroinvertebrate taxa should normally be present and all functional feeding groups should normally be well represented. Presence and productivity of aquatic species is not limited except by natural conditions, permitted flow regulation or irreversible cultural impacts. Water quality shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species. Taxa within the Orders Plecoptera (stoneflies), Ephemeroptera (mayflies), Coleoptera (beetles) and Trichoptera (caddisflies) should be well represented.

CLASSIFICATIONS SHOWN ON MAPS

A	Known or presumed to meet Criteria which support designated uses.
B/A or C/A	May not be meeting Criteria or one or more designated uses. The water quality goal is achievement of Class A Criteria and attainment of Class A designated uses.

CLASS B

Designated Uses - These surface waters are designated for: habitat for fish and other aquatic life and wildlife; recreation; and industrial and agricultural water supply.

Parameter		Criteria
1.	Aesthetics	Good to excellent
2.	Dissolved oxygen	Not less than 5 mg/l at any time.
3.	Sludge deposits - solid refuse - floating solids - oil and grease – scum	None except for small amounts that may result from the discharge from a permitted waste treatment facility and none exceeding levels necessary to protect and maintain all designated uses.
4.	Color	None which causes visible discoloration of the surface water outside of any designated zone of influence.
5.	Suspended and settleable solids	None in concentrations or combinations which would impair the most sensitive designated use; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of the bottom; and none which would adversely impact aquatic organisms living in or on the bottom sediments; shall not exceed 10 mg/l over ambient concentrations.
6.	Silt or sand deposits	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity, dredging activity or discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.
7.	Turbidity	Shall not exceed 5 NTU over ambient levels and none exceeding levels necessary to protect and maintain all designated uses. All reasonable controls or Best Management Practices are to be used to control turbidity.
8.	Indicator bacteria	REFER TO APPENDIX B.
9.	Taste and odor	None that would impair any uses specifically assigned to this Class.
10.	pH	6.5 - 8.0

Parameter	Criteria
11. Allowable temperature increase	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and, in no case exceed 85 degrees F, or in any case raise the temperature of the receiving water more than 4 degrees F.
12. Chemical constituents	None in concentrations or combinations which would be harmful to designated uses. Refer to Standards numbers 10, 11, 12, 13, 17, and 19.
13. Benthic invertebrates which inhabit lotic waters	Water quality shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species. All functional feeding groups and a wide variety of macroinvertebrate taxa shall be present, however one or more may be disproportionate in abundance. Waters which currently support a high quality aquatic community shall be maintained at that high quality. Presence and productivity of taxa within the Orders Plecoptera (stoneflies), Ephemeroptera (mayflies); and pollution intolerant Coleoptera (beetles) and Trichoptera (caddis- flies) may be limited due to cultural activities. Macroinvertebrate communities in waters impaired by cultural activities shall be restored to the extent practical through implementation of the department's procedures for control of pollutant discharges to surface waters and through Best Management Practices for non-point sources of pollution.

CLASSIFICATIONS SHOWN ON MAPS

B	Known or presumed to meet Criteria which support designated uses.
C/B or D/B	Due to point or non-point sources of pollution, certain Criteria or one or more designated uses assigned to Class B waters may not currently be met. The water quality goal is achievement of Class B Criteria and attainment of Class B designated uses.

CLASS C

Class C water quality results from conditions that are usually correctable through implementation of established water quality management programs to control point and non-point sources. Present water quality conditions frequently preclude the attainment of one or more designated uses for Class B waters or one or more Criteria for Class B waters are not being consistently achieved. Class C waters may be suitable for certain fish and wildlife habitat, certain recreational activities, industrial use and navigation. Class C waters may have good aesthetic value. Examples of conditions that warrant a Class C designation include: combined sewer overflows, urban runoff, inadequate municipal or industrial wastewater treatment, and community-wide septic system failures. The minimum acceptable goal is Class B unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more Class B designated uses are not attainable. In those situations, site-specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 7.

CLASSIFICATIONS SHOWN ON MAPS

C/B, C/A or C/AA — Presently not meeting Criteria or not supporting one or more assigned designated uses due to pollution. The goal for such waters may be Class AA, A or Class B.

CLASS D

Class D water quality results from conditions that are not readily correctable through implementation of established water quality management programs to control point and non-point sources. Present water quality conditions persistently preclude the attainment of one or more designated uses for Class B waters or one of more Criteria for Class B waters are not being achieved for prolonged periods. Class D waters may be suitable for bathing or other recreational purposes, certain fish and wildlife habitat, industrial uses and navigation. Class D waters may have good aesthetic value. Examples of conditions which warrant a Class D designation include chemical contamination of bottom sediments, contamination of fish or shellfish with toxic compounds, and pollution caused by out-of-state sources. The minimum acceptable goal is Class B unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more uses are not attainable. In those situations, site-specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 7.

CLASSIFICATIONS SHOWN ON MAPS

D/B, D/A - Presently not meeting Criteria or not supporting one or more assigned designated uses due to severe pollution or presence of certain persistent contaminants in the sediments which may bioaccumulate in the food chain. The goal for such waters may be Class A or Class B.

LAKE TROPHIC CATEGORIES

Criteria for Total Phosphorus, Total Nitrogen, Chlorophyll-a, and Secci Disk Transparency appearing in the table below represent acceptable ranges for these parameters within which recreational uses will be fully supported and maintained for lakes in each trophic category. For the purpose of determining consistency with the water quality standards for lakes classified AA, A or B, an assessment of the natural trophic category of the lake, absent significant cultural impacts, must be performed to determine which criteria apply.

OLIGOTROPHIC

May be Class AA, Class A, or Class B water. Low in plant nutrients. Low biological productivity characterized by the absence of macrophyte beds. High potential for water contact recreation.

Parameters		Criteria
1.	Total Phosphorus	0-10 ug/l spring and summer
2.	Total Nitrogen	0-200 ug/l spring and summer
3.	Chlorophyll-a	0-2 ug/l mid-summer
4.	Secchi Disk Transparency	6 + meters mid-summer

MESOTROPHIC

May be Class AA, Class A, or Class B water. Moderately enriched with plant nutrients. Moderate biological productivity characterized by intermittent blooms of algae and/or small areas of macrophyte beds. Good potential for water contact recreation.

Parameters		Criteria
1.	Total Phosphorus	10-30 ug/l spring and summer
2.	Total Nitrogen	200-600 ug/l spring and summer
3.	Chlorophyll-a	2-15 ug/l mid-summer
4.	Secchi Disk Transparency	2-6 meters mid-summer

EUTROPHIC

May be Class AA, Class A, or Class B water. Highly enriched with plant nutrients. High biological productivity characterized by frequent blooms of algae and/or extensive areas of dense macrophyte beds. Water contact recreation opportunities may be limited.

Parameters		Criteria
1.	Total Phosphorus	30-50 ug/l spring and summer
2.	Total Nitrogen	600-1000 ug/l spring and summer
3.	Chlorophyll-a	15-30- ug/l mid-summer
4.	Secchi Disk Transparency	1-2 meters mid-summer

HIGHLY EUTROPHIC

May be Class AA, Class A, or Class B water. Excessive enrichment with plant nutrients. High biological productivity, characterized by severe blooms of algae and/or extensive areas of dense macrophyte beds. Water contact recreation may be extremely limited.

Parameters		Criteria
1.	Total Phosphorus	50 + ug/l spring and summer
2.	Total Nitrogen	1000 + ug/l spring and summer
3.	Chlorophyll-a	0-1 meters mid-summer

COASTAL WATERS, CLASSES & CRITERIA.

CLASS SA -

Designated Uses - These surface waters are designated for: habitat for marine fish, other aquatic life and wildlife; shellfish harvesting for direct human consumption where authorized; recreation; industrial water supply; and navigation.

Parameter		Criteria
1.	Aesthetics	Uniformly excellent.
2.	Dissolved Oxygen	Not less than 6.0 mg/l at any time in the nearshore waters of Long Island Sound, including harbors, embayments and estuarine tributaries. Not less than 6.0 mg/l at any time in the offshore waters of Long Island Sound, above the seasonal pycnocline and throughout the Sound when no pycnocline is established. Not less than 3.5 mg/l for offshore waters within and below the seasonal pycnocline. Cumulative periods of dissolved oxygen in the 3.5 - 4.8 mg/l range shall not exceed exposure parameters detailed in Appendix C.
3.	Sludge Deposits-solid-refuse, floating-solids, oils and grease scum	None other than of natural origin.
4.	Color	None other than of natural origin.
5.	Suspended and settleable solids	None, other than of natural origin.
6.	Silt or sand deposits	None other than of natural origin except as may result from normal agricultural. Road maintenance, construction activity, dredging activity or discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.

7.	Turbidity	None other than of natural origin except as may result from normal agricultural, road maintenance, or construction activity, dredging activity or discharge of dredged or fill materials provided all reasonable controls and Best Management Practices are used to control turbidity and none exceeding levels necessary to protect and maintain all designated uses.
8.	Indicator bacteria	REFER TO APPENDIX B.
9.	Taste and odor	As naturally occurs.
10.	pH	6.8 - 8.5
11.	Allowable temperature increase	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and, in no case exceed 83 degrees F, or in any case raise the temperature of the receiving water more than 4 degrees F. During the period including July, August, and September, the temperature of the receiving water shall not be raised more than 1.5 degrees F unless it can be shown that spawning and growth of indigenous organisms will not be significantly affected.
12.	Chemical constituents	None in concentrations or combinations which would be harmful to designated uses. Refer to Standards numbers 10, 12, 13, and 19.

CLASSIFICATIONS SHOWN ON MAPS

SA	Know or presumed to meet Criteria which support designated uses.
SB/SA or SC/SA	Presently may not be meeting Criteria or one or more designated uses. The water quality goal is achievement of Class SA Criteria and attainment of Class SA designated uses.

CLASS SB

Designated Uses - These waters are designated for: habitat for marine fish, other aquatic life and wildlife; commercial shellfish harvesting where authorized; recreation; industrial water supply; and navigation.

Parameter		Criteria
1.	Aesthetics	Good to excellent.
2.	Dissolved Oxygen	Not less than 5.0 mg/l at any time in the near shore water of Long Island Sound, including harbors, embayments and estuarine tributaries. Not less than 5.0 mg/l at any time in the offshore waters of Long Island Sound above the seasonal pycnocline and throughout the Sound when no pycnocline is established. Not less than 3.5 mg/l for offshore waters within and below the seasonal pycnocline. Cumulative periods of dissolved oxygen exposure in the 3.5 – 4.8 mg/l range shall not exceed parameters detailed in Appendix C.
3.	Sludge deposits solid refuse – floating solids – oils and grease-scum	None except for small amounts that may result from the discharge from a grease waste treatment facility providing appropriate treatment and none exceeding levels necessary to protect and maintain all designated uses.
4.	Color	None resulting in obvious discoloration of the surface water outside of any designated zone of influence.
5.	Suspended and settleable solids	None in concentrations or combinations which would impair the designated uses; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of bottom sediments; none which would adversely impact organisms living in or on the bottom sediment.
6.	Silt or sand deposits	None other than of natural origin except as may result from normal agricultural, raod maintenance, construction activity, dredging activity or discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.

7.	Turbidity	None other than of natural origin except as may result from normal agricultural, raod maintenance, or construction activity, or discharge from a waste treatment facility providing appropriate treatment, dredging activity or discharge of dredged or fill materials provided all reasonable controls and Best Management Practices are used to control turbidity and none exceeding levels necessary to protect and maintain all designated uses.
8.	Indicator bacteria	REFER TO APPENDIX B.
9.	Taste and odor	As naturally occurs. None that would impair any uses specifically assigned to this Class.
10.	pH	6.8 - 8.5
11.	Allowable temperature increase	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and, in no case exceed 83 degrees F, or in any case raise the temperature of the receiving water more than 4 degrees F. During the period including July, August, and September, the temperature of the receiving water shall not be raised more than 1.5 degrees F unless it can be shown that spawning and growth of indigenous organisms will not be significantly affected.
12.	Chemical constituents	None in concentrations or combinations which would be harmful to the designated uses. Refer to Standards numbers 10, 12, 13, and 19.

CLASSIFICATIONS SHOWN ON MAPS

SB	Known or presumed to meet Criteria which support designated uses.
SC/SB or SD/SB	Due to point or non-point sources of pollution, certain Criteria or one or more designated uses assigned to Class SB surface waters may not be currently met. The water quality goal is achievement of Class SB criteria and attainment of Class SB designated uses.

CLASS SC

Class SC water quality results from conditions that are usually correctable through implementation of established water quality management programs to control point and non-point sources. Present surface water quality conditions frequently preclude the attainment of one of more designated uses for Class SB waters or one or more Criteria for Class SB waters are not being consistently achieved. Class SC waters may be suitable for certain fish and wildlife habitat, certain recreational activities, certain aquaculture operations, industrial use and navigation. Class SC waters may have good aesthetic value. Examples of conditions that warrant a Class SC designation include combined sewer overflows, urban runoff, inadequate municipal or industrial wastewater treatment, and community-wide septic system failures. The minimum acceptable goal is Class SB unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more Class SB uses are not attainable. In those situations, site-specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 7.

CLASSIFICATIONS SHOWN ON MAPS

SC/SB or SC/SA — Presently not meeting Criteria or not supporting one or more designated uses due to pollution. The goal for such waters may be Class SB, or Class SA.

CLASS SD

Class SD water quality results from conditions that are not readily correctable through implementation of established water quality management programs to control point and non-point sources. Present water quality conditions persistently preclude the attainment of one or more designated uses of one or more Criteria for Class SB waters are not being achieved for prolonged periods. Class SD waters may be suitable for certain fish and wildlife habitat, certain recreational activities, certain aquaculture operations, industrial use and navigation. Examples of conditions that warrant a Class SD designation include chemical contamination of bottom sediments, contamination of fish or shellfish with toxic compounds, and pollution caused by out0of0state sources. The minimum acceptable goal is Class SB unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more uses are not attainable. In those situations, site-specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 7.

CLASSIFICATIONS SHOWN ON MAPS

SD/SB, SD/SA — Presently not meeting Criteria or not supporting one or more assigned designated uses due to severe pollution. The goal for such surface waters may be Class SA or Class SB.

APPENDIX A
DEFINITIONS

Acute Toxicity
means adverse effect such as mortality or debilitation caused by a brief exposure to a toxic substance.

Aesthetics
means the appearance, odor or other characteristics of a surface water which impact human senses and enjoyment of such surface water.

Anti-degradation Policy
means a statement of practice required by federal law which protects existing uses and prohibits a state from lowering high quality surface water quality in order to accommodate activities which impact a particular surface water unless a lowering of surface water quality is determined, following intergovernmental coordination and public participation, to be necessary to accommodate important economic or social development in the area where the water is located.

Arithmetic Mean
means the number, calculated by dividing the sum of all values by the number of values to be averaged.

Atmospheric Deposition
means the delivery of airborne substances of both natural and human origin to land and water surfaces which can be deposited with or without rainfall.

Benthic
means associated with the bottom of a surface water body.

Benthic Macro Invertebrates
means animals which are large enough to be seen by the unaided eye and which can be retained by a U. S. standard No. 30 sieve (28 meshes per inch, 0.595 mm openings), and which live at least part of their life cycle within or upon submerged substrates in a body of water. These animals usually consist of the aquatic life stages of various insects and arthropods, mollusks, leeches and worms.

Best Management Practices
means those practices which reduce pollution and which have been determined by the Commissioner to be acceptable based on, but not limited to, technical, economic and institutional feasibility.

Bioaccumulation
means the uptake and retention of substances by an organism from its surrounding medium and/or from food.

Bioconcentration
means the uptake and retention of substances by an organism from its surrounding medium.

Biological Integrity
means the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitats of a region.

Chronic Toxicity
means an adverse effect, such as reduced reproductive success or growth or poor survival of sensitive life stages occurring as a result of exposure to a substance for a period of time related to the life span of an organism and usually longer than that which causes acute toxicity.

Classification
means the designation of the proposed uses of surface and ground waters with alphabetic characters. Where classifications appear as alphabetic characters separated by a diagonal line, the first classification indicates known or presumed existing water quality and the second classification indicates the goal for the subject water.

Clean Water

means water which in the judgment of the Commissioner is of a quality substantially similar to that occurring naturally in the receiving stream under consideration. Clean water may include minor cooling waters, residential swimming pool water, and stormwater.

Coastal Waters

means as defined by Section 22a-93 of the Connecticut General Statutes and means those waters of Long Island Sound and its harbors, embayments, tidal rivers, streams and creeks, which contain a salinity concentration of at least five hundred parts per million under the low flow stream conditions as established by the Commissioner.

Commissioner

means the Commissioner of Environmental Protection or his designated agent as set forth in Section 22a-423 of the Connecticut General Statutes.

Criteria

means components of these Water Quality Standards, expressed in chemical, physical, or biological parameters and their concentrations, or levels, or by narrative statements, representing a quality of water that supports a particular use.

Department

means the Connecticut Department of Environmental Protection.

Designated Use

means those uses specified in these Water Quality Standards for each surface water (or ground water) classification, whether or not they are being attained.

Discharge

means as set forth in Sec. 22a-423 of the Connecticut General Statutes.

Discharge Toxicity Evaluation

means a structured scientific analysis of the toxicity and discharge rate of effluent relative to available dilution in the receiving surface water which is prepared as described in the Department's guidance document, Guidelines for Preparation of Discharge Toxicity Evaluations.

Domestic Sewage

means waste water which consists of water and human excretions or other waterborne wastes incidental to the occupancy of a residential building or a non-residential building but not including manufacturing process water, cooling water, wastewater from water softening equipment, commercial laundry wastewater, blowdown from heating or cooling equipment, water from cellar or floor drains or surface water from roofs, paved surfaces, or yard drains.

Dredging Activity

means the excavation, removal or redistribution of sediment from surface waters.

Dredged Material

means sediment that is excavated or dredged from surface waters.

Dredged Material Disposal Area

means an area which has been approved by the Commissioner for disposal of dredged material, including but not limited to federally designated dredged material disposal areas in Long Island Sound.

Effluent

means treated waste process waters or cooling waters discharged from a waste treatment or manufacturing facility.

Eutrophication

means the process of enrichment of surface waters with plant nutrients which may cause nuisance algae blooms and excessive growth of aquatic weeds.

Existing uses

means, those uses actually attained in a water body on or after November 28, 1975, whether or not they are included in water quality standards as defined in Federal Water Quality Standards Regulation (40 CFR Part 131.3).

Fill material

means any material deposited or placed which has the effect of raising the level of the ground surface, whether such surface is above, at, or below the water table, or to replace surface waters with dry land. This term includes, but is not limited to consolidated material such as concrete and brick and unconsolidated material such as sand, gravel and stone.

Functional Feeding Group

means a category of benthic macroinvertebrates based on similarities in feeding mechanisms.

Geometric Mean

means a measure of central tendency calculated by determining the anti-log of the mean of the logarithms of the values to be averaged.

Ground Waters

means waters flowing through earth materials beneath the ground surface.

Ground Water of Natural Quality

means ground water which is free from pollution by solid waste, wastewater discharges, chemical spills or leaks, pesticides or other anthropogenic sources of water pollution other than acid rain.

High Quality Waters

means surface waters where the water quality is better than necessary to meet the criteria established in these Water Quality Standards for the applicable classification or which may sustain a sensitive use designated for a higher classification.

Indicator

means a parameter or value derived from a parameter, which provides information about the environment with significance extending beyond that which was measured. It is intended as a surrogate to evaluate other unmeasured conditions.

Indicator bacteria

means a species or group of microbes which are used to conduct microbiological examinations of water in order to determine its sanitary quality. The primary function of these indicators is to provide evidence of recent fecal contamination from warm blooded animals. They serve as surrogates for pathogens which may be present in sewage.

Indigenous

means animal or plant life which naturally occurs in a particular geographic region.

Invertebrates

means animals lacking a backbone.

Lentic

means non flowing surface water such as lakes and ponds.

Lotic

means flowing surface water such as streams or rivers.

Marine Sanitation Device or MSD

means a device installed or used on watercraft for the collection, treatment or disposal of human wastes.

Most Sensitive Use

means the designated use (drinking, swimming, boating, fish and aquatic life propagation, irrigation etc.) which is most susceptible to degradation by a specific pollutant.

Moving Average
means the mean of consecutive values in a time series of a specified duration. For example, a 12 month moving average is calculated by averaging the monthly values for a parameter for the most recent 12 consecutive months; thus as time progresses and more new values are available, old values are dropped resulting in an average value which is always based on the 12 most recent consecutive monthly values.

Nearshore
means coastal waters of Long Island Sound that are generally less than 5 meters in depth at mean low water and include embayments and harbors.

Non-point source
means any unconfined and diffuse source of pollution such as stormwater or snowmelt runoff, atmospheric deposition, or groundwater not conveyed to a surface water discharge point within a discrete conveyance.

Offshore
means coastal waters of Long Island Sound that are greater than 5 meters in depth at mean low water.

Point source
means any source of treated or untreated wastewater that is conveyed to a surface water discharge point within a discrete, readily identifiable conveyance such as a pipe, conduit, or other confined structure.

Pycnocline
means a steep density gradient in an estuary caused by differences in temperature or salinity between the bottom and surface layers of water that limits mixing of the two layers.

Recreational use
means active or passive water-related leisure activities such as fishing, swimming, boating, and aesthetic appreciation.

Sanitary Survey
means an investigation of a particular geographic area to determine if unlawful or inadequately treated discharges of sewage or other sources of indicator bacteria are present.

Sediments
means any natural or artificial materials which constitute all or part of the banks, bed or bottom of an intermittent or perennial surface water.

Sewage
means as defined in Sec. 22a-423 of the General Statutes and means "human and animal excretions and all domestic and such manufacturing wastes as may tend to be detrimental to the public health."

Streamflow Regulation
means control of the rate of stream flow by means of dams withdrawals, or diversions of water.

Surface Water
means the waters of Long Island Sound, its harbors, embayments, tidal wetlands and creeks; rivers and streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and other natural or artificial, public or private, vernal or intermittent bodies of water, excluding groundwater.

Taxon (pl. Taxa)
means a biological classification category, usually the most specific division attainable in taxonomy.

Technically Practicable
means with respect to ground water remediation, the greatest degree of remediation that can be achieved using sound engineering and hydrogeologic practices.

Technology - Based Treatment
means a level and type of treatment required by Section 301(b) and 304(b) of the Federal Clean Water Act, which is based on the particular manufacturing process used and type of waste generated.

Toxic Substance

means any substance which can adversely affect the survival, growth or reproduction of fish, other forms of aquatic life, other wildlife or humans exposed thereto either by direct contact or through consumption.

Trophic Condition

means the state of enrichment of surface waters with plant nutrients.

Use Attainability Analysis

means a structured scientific assessment of the physical, chemical, biological, and economic factors affecting the ability of a surface water to achieve and support uses as described in federal regulation at 40 CFR 131.10.

Water Quality

means the physical, chemical and biological characteristics of surface or ground waters.

Zone of Influence

means an area or volume of surface water or ground water within which some degradation of water quality or inconsistency with water quality criteria is anticipated as a result of a pollutant discharge. The term zone of influence may be used to describe an area impacted by thermal, conventional, or toxic pollutants.

Zone of Passage

means an area or volume of flow in surface water within which pollutants, including temperature will not impede or prohibit the passage of free swimming or drifting aquatic organisms.

7Q10 or Seven-Day, Ten Year Low Flow

means the lowest seven consecutive-day mean stream flow with a recurrence interval of ten years.

APPENDIX B
WATER QUALITY CRITERIA FOR BACTERIAL INDICATORS OF SANITARY QUALITY
SEE ALSO STANDARDS # 23 AND 25

DESIGNATED USE	CLASS	INDICATOR	CRITERIA
Freshwater			
Drinking Water Supply (1)			
Existing / Proposed	AA	Total Coliform	Monthly Moving Average less than 100/100ml Single Sample Maximum 500/100ml
Potential	A	----	--------
Recreation (2)(3)			
Designated Swimming (4)	AA, A, B	*Escherichia coli*	Geometric Mean less than 126/100ml Single Sample Maximum 235/100ml
Non-designated Swimming (5)	AA, A, B	*Escherichia coli*	Geometric Mean less than 126/100ml Single Sample Maximum 406/100ml
All Other Recreational Uses	AA, A, B	*Escherichia coli*	Geometric Mean less than 126/100ml Single Sample Maximum 576/100ml
Saltwater			
Shellfishing			
Direct Consumption	SA	Fecal Coliform	Geometric Mean less than 14/100ml 90% of Samples less than 43/100ml
Recreation			
Designated Swimming (4)	SA, SB	Enterococci	Geometric Mean less than 35/100ml Single Sample Maximum 104/100ml
All Other Recreational Uses	SA, SB	Enterococci	Geometric Mean less than 35/100ml Single Sample Maximum 500/100ml

Table Notes:

(1) Criteria applies only at the drinking water supply intake structure.

(2) Criteria for the protection of recreational uses in Class B waters do not apply when disinfection of sewage treatment plant effluents is not required consistent with Standard 23.

(3) See Standard # 25.

(4) Procedures for monitoring and closure of bathing areas by State and Local Health Authorities are specified in: Guidelines for Monitoring Bathing Waters and Closure Protocol, adopted jointly by the Department of Environmental Protection and the Department of Public Health, May 1989, revised June 1992.

(5) Includes areas otherwise suitable for swimming but which have not been designated by State or Local authorities as bathing areas, waters which support tubing, water skiing, or other recreational activities where full body contact is likely.

Guidelines for Use of Indicator Bacteria Criteria

Water Quality Classifications are reviewed approximately every three years at which time all available water quality monitoring data is considered along with other relevant information. Relevant information includes but is not limited to federal guidance concerning the scientific basis for deriving the criteria and the potential health risks associated with excursions above the criteria, recommended implementation procedures, and the results of sanitary surveys or other investigations into sources of indicator bacteria in the watershed. Public input is also solicited and considered in determining the existing water quality conditions and water quality goals. Nevertheless, the Water Quality Classification may not be an accurate representation of current water quality conditions at any particular site. For this reason, the Water Quality Classification should not be considered as a certification of quality by the State or an approval to engage in certain activities such as swimming or shellfish harvest

Appendix C
Dissolved Oxygen (DO) Criteria for Offshore Coastal Waters

Background: Offshore Coastal DO criteria are based on the Environmental Protection Agency's *Ambient Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras*, noticed November 30, 2000 in the Federal Register (65(231):71317-71321).

Area Affected: DO criteria different from the 6.0 mg/l and 5.0 mg/l minimums for Class SA and SB offshore waters apply only in and below the pycnocline of Long Island Sound (LIS) where stratification occurs during warm, summer conditions. Offshore waters are defined as areas of LIS greater than 5m in depth at mean low water. Offshore waters above the pycnocline generally have ample DO from photosynthesis and wave-driven diffusion.

Cumulative DO exposure parameters: DO conditions in the area affected do not readily lend themselves to a single numeric criterion as is often done with toxic contaminants. Aquatic organisms are harmed based on a combination of minimum oxygen concentration and duration of the low DO excursion. A DO concentration of 4.8 mg/l would meet the chronic criteria for growth and protect estuarine organisms resident in LIS regardless of duration. If oxygen fell within a 0.5 mg/l incremental range below 4.8 mg/l (*i.e.*, between 4.3 and 4.8 mg/l), a duration of 21 days or less would meet resource protection goals. Based upon the EPA research and data, similar exposure allowances were used by the Connecticut DEP for each 0.5 mg/l increment (see Table 1). The minimum DO level that can be associated with the draft EPA DO criteria document (i.e. the level below which there would be no exposure period consistent with resource protection) is 2.3 mg/l. Given the environmental variability, DEP has used more protective minimum DO criteria of 3.5-3.8 mg/l with no more than 5 days exposure.

Because estuarine systems are variable, DO levels are unlikely to remain within one of the three incremental ranges presented in Table 1. Typically, DO conditions would fall through a range to a minimum and then begin to rebound depending on weather and stratification conditions. To account for this, the number of days within each incremental DO range is pro-rated, as follows. A decimal fraction is calculated for each range, *e.g.*, 10.5 days in the 4.3-4.8 mg/l range would produce a decimal fraction of 0.50 (10.5 days/21 days). As long as the sum of those fractions calculated for each range is less than 1.0, resource protection goals are maintained for larval recruitment.

Table 1. DO incremental ranges and duration (exposure) data to be applied to LIS in the area affected to ensure protection of larval recruitment.

DO Range (mg/l)		No. of Days Allowed
Maximum	Minimum	
4.8	4.3	21
4.3	3.8	11
3.8	3.5	5

APPENDIX D
NUMERICAL WATER QUALITY CRITERIA FOR CHEMICAL CONSTITUENTS [1]

Concentrations in ug/L

	Aquatic Life Criteria				Human Health Criteria		
	Freshwater		Saltwater		Consumption of:		
Compound	**Acute [2]**	**Chronic [3]**	**Acute [2]**	**Chronic [3]**	**Organisms Only**	**Water and Organisms**	**Health Designation [4]**
Toxic Metals [5], Cyanides							
Antimony	- - -	- - -	- - -	- - -	4300	6	TT
Arsenic (Tri)	340	150	69	36	0.021	0.011	A
Beryllium	- - -	- - -	- - -	- - -	.13	.0077	TT
Cadmium	2.02	1.35	42	9.3	10,769	5	TT
Chromium (hex)	16	11	1100	50	2,019	100	TT
Chromium (tri)	323	42	- - -	- - -	1,009,615	100	TT
Copper	14.3[6]	4.8 [7]	4.8	3.1	- - -	1300	TT
Copper (site-specific) [8]	25.7	18.1	- - -	- - -	- - -	1300	TT
Cyanide ($HCN + CN^-$)	22	5.20	1	1	220,000	200	TT
Lead	65	2.5	210	8.1	- - -	15	TT
Mercury	1.4	0.77	1.8	0.94	0.44	0.42	TT-HB
Nickel	260.5	28.9	74	8.2	4,600	610	TT
Selenium	20 (total)	5 (total)	290	71	11,000	50	TT
Silver	1.02	- - -	1.96	- - -	107,692	175	TT
Thallium	- - -	- - -	- - -	- - -	7.43	2	TT
Zinc	65	65	90	81	68,740	9,100	TT

	Aquatic Life Criteria				Human Health Criteria		
	Freshwater		Saltwater		Consumption of:		
Compound	**Acute[2]**	**Chronic[3]**	**Acute[2]**	**Chronic[3]**	**Organisms Only**	**Water and Organisms**	**Health Designation[4]**
Volatiles							
Acrolein	---	---	---	---	780	320	TT
Acrylonitrile	---	---	---	---	.66	.059	C
Benzene	---	---	---	---	71	1.2	A
Bromoform	---	---	---	---	360	4.3	C
Carbon Tetrachloride	---	---	---	---	4.4	.25	C
Chlorobenzene	---	---	---	---	21,000	100	TT
Chlorodibromomethane	---	---	---	---	34	.41	C
Chloroethane	---	---	---	---	---	---	---
Chloroform	---	---	---	---	470	5.7	C
Dichlorobromomethane	---	---	---	---	46	0.56	C
1,1 Dichloroethane	---	---	---	---	---	---	---
1-2-Dichloroethane	---	---	---	---	99	.38	C
1,1-Dichloroethylene	---	---	---	---	3.2	0.057	C
1,2,T-Dichloroethylene	---	---	---	---	140,000	100	TT
1,2-Dichloropropane	---	---	---	---	39	0.52	TT
1,3-Dichloropropylene	---	---	---	---	1,700	10	TT
Ethylbenzene	---	---	---	---	29,000	700	TT
Methyl Bromide	---	---	---	---	4,000	48	TT
Methyl Chloride	---	---	---	---	470	5.7	TT
Methylene Chloride	---	---	---	---	1,600	4.7	C
1,1,2,2-Tetrachloroethane	---	---	---	---	11	.17	C-HB
Tetrachloroethylene	---	---	---	---	8.85	.8	TT

	Aquatic Life Criteria				Human Health Criteria		
	Freshwater		Saltwater		Consumption of:		
Compound	**Acute[2]**	**Chronic[3]**	**Acute[2]**	**Chronic[3]**	**Organisms Only**	**Water and Organisms**	**Health Designation[4]**
Volatiles (continued)							
Toluene	---	---	---	---	200,000	1,000	TT
1,1,2 Trichloroethane	---	---	---	---	42	0.6	C
Trichoroethylene	---	---	---	---	81	2.7	C
Vinyl Chloride	---	---	---	---	525	2	C
GC/MS : Acid Compounds							
2-Chlorophenol	---	---	---	---	400	120	TT
2,4-Dichlorophenol	---	---	---	---	790	93	TT
2,4-Dimethylphenol	---	---	---	---	---	---	---
3-Methyl-4-chlorophenol	---	---	---	---	---	---	---
2-Methyl-4,6-Dintrophenol (=4,6 Dinitro-o-cresol)	---	---	---	---	765	13.4	TT
2,4-Dinitrophenol	---	---	---	---	14,000	70	TT
2-Nitrophenol	---	---	---	---	---	---	---
Pentachlorophenol	19	15	13	7.9	8.2	.28	C-HB
Phenol	---	---	---	---	4,600,000	21,000	TT
2,4,6-Trichlorophenol	---	---	---	---	6.5	2.1	C-HB
Base Neutral Compounds							
Acenaphthene	---	---	---	---	6.1	2.7	TT-HB
Acenapthylene	---	---	---	---	49.2	4.37	C-HB
Anthracene	---	---	---	---	4.92	0.44	C-HB
Benzidine	---	---	---	---	.00054	.00012	A

Compound	Aquatic Life Criteria: Freshwater Acute[2]	Freshwater Chronic[3]	Saltwater Acute[2]	Saltwater Chronic[3]	Human Health Criteria: Consumption of: Organisms Only	Water and Organisms	Health Designation[4]
Base Neutral Compounds (continued)							
Benzo(a)anthracene	---	---	---	---	0.49	0.044	C-HB
Benzo(a)pyrene	---	---	---	---	0.049	0.0044	C-HB
Benzo(b)fluoranthene	---	---	---	---	0.49	0.044	C-HB
Benzo(ghi)perylene	---	---	---	---	4.92	0.44	C-HB
Benzo(k)fluoranthene	---	---	---	---	0.49	0.044	C-HB
Bis(2-chloroethoxy)Methane	---	---	---	---	---	---	---
Bis(2-Chloroethyl)Ether	---	---	---	---	1.4	.031	C
Bis(2-Chloroisopropyl)Ether	---	---	---	---	170,000	1,400	TT
Bis(2-Ethylhexyl)phthalate	---	---	---	---	5.9	1.8	C-HB
4-Bromophenyl ether	---	---	---	---	---	---	---
Butyl benzl phthalate	---	---	---	---	5200	3000	TT-HB
2-Chloronapthalene	---	---	---	---	4300	1700	TT-HB
4-chlorophenyl phenyl ether	---	---	---	---	---	---	---
Chrysene	---	---	---	---	4.92	0.44	C-HB
Dibenzo(a,h)anthracene	---	---	---	---	0.010	0.0009	C-HB
1,2-Dichlorobenzene	---	---	---	---	17,000	2,700	TT-HB
1,3-Dichlorobenzene	---	---	---	---	2,600	400	TT-HB
1,4-Dichlorobenzene	---	---	---	---	2,600	400	TT-HB
3,3-Dichlorobenzidines	---	---	---	---	.077	.04	C-HB
Diethyl Phthalate	---	---	---	---	120,000	23,000	TT
Dimethyl Phthalate	---	---	---	---	2,900,000	313,000	TT

	Aquatic Life Criteria				Human Health Criteria		
	Freshwater		Saltwater		Consumption of:		
Compound	**Acute[2]**	**Chronic[3]**	**Acute[2]**	**Chronic[3]**	**Organisms Only**	**Water and Organisms**	**Health Designation[4]**
Base Neutral Compounds (continued)							
Di-n-butyl Phthalate	---	---	---	---	12,000	2,700	TT-HB
Di-n-octyl phthalate ester	---	---	---	---	---	---	---
2,4-Dinitrotoluene	---	---	---	---	9.1	.11	C
2,6-Dinitrotoluene	---	---	---	---	---	---	---
Di-n-octyl phthalate	---	---	---	---	---	---	---
1,2-Diphenylhydrazine	---	---	---	---	.54	.04	C
Fluoranthene	---	---	---	---	1.28	1.01	C-HB
Fluorene	---	---	---	---	49.2	4.37	C-HB
Hexachlorobenzene	---	---	---	---	.00077	.00075	C-HB
Hexachlorobutadiene	---	---	---	---	50	.44	C-HB
Hexachlorocycopentadiene	---	---	---	---	17,000	50	TT-HB
Hexachloroethane	---	---	---	---	8.9	1.9	C-HB
Indeno(1,2,3-cd)pyrene	---	---	---	---	0.49	0.044	C-HB
Isophorone	---	---	---	---	2600	36	TT
Naphthalene	---	---	---	---	20,513	677	---
Nitrobenzene	---	---	---	---	1,900	17	TT
N-Nitrosodimethylamine	---	---	---	---	8.1	.00069	C
N-Nitrosodi-n-propylamine	---	---	---	---	1.4	0.005	C
N-Nitrosodiphenylamine	---	---	---	---	16	5	C
Phenanthrene	---	---	---	---	49.17	4.37	C-HB

	Aquatic Life Criteria				Human Health Criteria		
	Freshwater		Saltwater		Consumption of:		
Compound	**Acute[2]**	**Chronic[3]**	**Acute[2]**	**Chronic[3]**	**Organisms Only**	**Water and Organisms**	**Health Designation[4]**
Base Neutral Compounds (continued)							
Pyrene	- - -	- - -	- - -	- - -	49.17	4.37	C-HB
1,2,4-Trichlorobenzene	- - -	- - -	- - -	- - -	940	70	TT
Pesticides:							
Aldrin	1.50	- - -	.65	- - -	.00014	.00013	C-HB
Chlordane	1.20	.0043	.045	.004	0.0022	0.0021	C-HB
DDT	.55	.001	.065	.001	.00059	.00059	C-HB
DDD	- - -	- - -	- - -	- - -	.00084	.00083	C-HB
DDE	- - -	- - -	- - -	- - -	.00059	.00059	C-HB
Dieldrin	0.24	0.56	.355	.0019	.00014	.00014	C
Endosulfan(alpha)	.11	.056	.017	.0087	240	110	TT
Endosulfan (beta)	.11	.056	.017	.0087	240	110	TT
Endosulfan Sulfate	- - -	- - -	- - -	- - -	240	110	TT
Endrin	0.086	0.036	.0185	.0023	.81	.76	TT
Endrin Aldehyde	- - -	- - -	- - -	- - -	.81	.76	TT
Heptachlor	.26	.0038	.0265	.0036	.00021	.00021	C
Heptachlor epoxide	.26	.0038	.0265	.0036	.00011	.00010	C
Hexachlorocyclohexane (Alpha)	- - -	- - -	- - -	- - -	.013	.0039	C-HB
Hexachlorocyclohexane (Beta)	- - -	- - -	- - -	- - -	.046	.014	C-HB
Hexachlorocyclohexane (delta)	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Hexachlorocyclohexane (Gamma) 'Lindane'	0.95		.08	- - -	.063	.019	TT-HB

	Aquatic Life Criteria				Human Health Criteria		
	Freshwater		Saltwater		Consumption of:		
Compound	**Acute[2]**	**Chronic[3]**	**Acute[2]**	**Chronic[3]**	**Organisms Only**	**Water and Organisms**	**Health Designation[4]**
Pesticides (continued)							
Polychlorinated Biphenyls	- - -	.014	- - -	.03	.00017	.00017	C-HB
2,3,7,8-TCDD	- - -	- - -	- - -	- - -	.000000014	.000000013	C-HB
Toxaphene	.73	.0002	.21	.0002	.00075	.00073	C-HB
Other Substances:							
Ammonia	See Table Note 9a	See Table Note 9b and 9c	233[10]	35[10]	- - -	- - -	- - -
Asbestos	- - -	- - -	- - -	- - -	- - -	7,000,000 fibers/liter	A
Chlorine	19	11	13	7.5	- - -	- - -	- - -

TABLE NOTES:

1. The minimum data necessary to determine consistency with Connecticut Water Quality Standards shall be subject to the Commissioner's discretion and may not be limited to or include chemical analysis results for all of the constituents listed in Appendix D.

2. Biological integrity is impaired by an exposure of one hour or longer to a concentration which exceeds the acute criteria more frequently than once every three years on average.

3. Biological integrity is impaired when the four-day average concentration exceeds the chronic criteria more frequently than once every three years on average.

4. The Commissioner will consider the following human health designations in allocating zones of influence for point source discharges:

A:	Class A carcinogen (known human carcinogen)
TT:	Threshold Toxicant, not carcinogenic
C:	Carcinogenic (probable or possible carcinogen)
HB:	High potential to bioaccumulate or bioconcentrate.

5. Criteria apply to the dissolved fraction unless otherwise noted.

6. Biological integrity is impaired when the ambient concentration exceeds this value on more than 5% of days in any year.

7. Biological integrity is impaired when the ambient concentration exceeds this value on more than 50% of days in any year.

8. Site specific criteria for copper apply for the following waters:

Bantam River	Litchfield POTW to confluence with Shepaug River
Blackberry River	Norfolk POTW to confluence with Roaring Brook
	North Canaan POTW to confluence with Housatonic River
Factory Brook	Salisbury POTW to mouth
Five Mile River	New Canaan POTW to mouth
Hockanum River	Vernon POTW to confluence with Connecticut River
Mill Brook	Plainfield Village POTW to mouth
Naugatuck River	Torrington POTW to confluence with Housatonic River
Norwalk River	Ridgefield Brook to Branchville
Pequabuck River	Plymouth POTW to confluence with Farmington River
Quinnipiac River	Southington POTW to Broadway, North Haven
Still River	Winsted POTW to confluence with Farmington River
Still River	Limekiln Brook to confluence with Housatonic River
Williams Brook	Ledyard POTW to mouth
Willimantic River	Stafford Springs POTW to Trout Management Area (Willington)
	Eagleville Dam to confluence with Shetucket River

TABLE NOTES (cont.)

9. Criteria for ammonia, (mg/l as N) vary in response to ambient surface water temperature (T, degrees C) and pH. Biological integrity is considered impaired when:

a. The one-hour average concentration of total ammonia exceeds:

$$[0.275 / 1+10^{(7.204-pH)}] + [39.0 / 1+10^{(7.204-pH)}] \text{ when salmonids are present}$$

or

$$[0.411 / 1 + 10^{(7.204-pH)}] + [58.4 / 1+ 10^{(pH-7.204)}] \text{ when salmonids are absent}$$

b. The four-day average concentration of total ammonia exceeds 2.5 times the value obtained from the formula in 9.c. below.

c. The 30-day average concentration of total ammonia exceeds:

$$[0.0577 / 1 + 10^{7.688-pH}] + [2.487 / 1 + 10^{pH-7.688}] \times [MIN (2.85, 1.45 (10^{0.028 (25-T)}))] \text{ when early life stages are present}$$

or

$$[0.0577 / 1 + 10^{7.688-pH}] + [2.487 / 1 + 10^{ph-7.688}] \times [1.45 (10^{0.028 (25-MAX(T, 7))})] \text{ when early life stages are absent.}$$

10. Saltwater Ammonia criteria expressed as un-ionized ammonia (NH_3). Equivalent total ammonia concentrations are dependent on receiving water temperature, pH, and salinity. Conversion of un-ionized ammonia concentrations to total ammonia ($NH_3 + NH_4^+$) may be performed using the procedure described in "Ambient Water Quality Criteria for Ammonia (Saltwater) – 1989", EPA 440/5-88-004.

APPENDIX E

CONNECTICUT ANTI-DEGRADATION IMPLEMENTATION POLICY

I. PURPOSE. The purpose of this policy is to establish procedures to implement Connecticut's anti-degradation policy as required by the federal Clean Water Act (Title 40 Part 131.12) and Connecticut's Surface Water Quality Standards 2 through 5. This policy requires the maintenance and protection of water quality in high quality waters and protection and maintenance of existing uses in all cases.

II. APPLICABILITY. The procedures outlined in this policy apply to any proposed new or increased point source, non point source or atmospheric discharge, dredging activity or discharge of dredged or fill materials to surface waters, any activity requiring a permit pursuant to Chapter 440 or 446i-k of the Connecticut General Statutes or requiring Water Quality Certification pursuant to Section 401 of the Clean Water Act, or requiring State concurrence in accordance with Section 307 of the Federal Coastal Zone Management Act.

III. SURFACE WATER RESOURCES TO BE MAINTAINED AT EXISTING HIGH QUALITY.

1) Outstanding National Resource Waters

Should the Commissioner designate a high quality surface water as an Outstanding National Resource Water at any time after the effective date of these Water Quality Standards, such water will be managed consistent with Standard 5 of these Water Quality Standards.

2) Class AA, A and SA waters

The Commissioner shall not issue any certificate or permit for any regulated discharge, dredging activity or discharge of fill and dredged materials unless the Commissioner finds that all existing and designated uses as defined in these water quality standards will be protected fully and the discharge is consistent with the use goals of these Water Quality Standards and the hypoxia management actions contained in the Total Maximum Daily Load to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound.

The Commissioner may issue a certificate or permit for a point source discharge to Class AA, A, or SA waters provided:

(a) the discharge will be of limited duration and is necessary to remediate an existing surface or ground water pollution problem, or

(b) the discharge will consist of clean water, treated backwash waters from public or private drinking water treatment systems, dredging activity, water from dredged material dewatering operations, or discharge of dredged or fill material and such discharge will not result in violation of Class A, AA or SA standards.

The Commissioner may issue a certificate or permit for a non-point discharge to Class AA, A, or SA waters provided:

(a) appropriate Best Management Practices as determined by the Commissioner are employed by the certificate holder or permittee and,

(b) in the case of a dredging activity or discharge of dredged or fill material, the Commissioner finds that the resulting change in water quality will not be significant in accordance with paragraph IV.1 of this appendix.

3) High quality Class B or SB water resources, i.e. those with a quality better than criteria for that Class contained in the Water Quality Standards and which support a designated uses, will be maintained at their existing high quality unless:

(a) the Commissioner finds, in accordance with paragraph IV.1 of this Anti-Degradation Policy that the resulting change in water quality would not be significant; or

(b) the Commissioner finds in accordance with paragraph IV.1 of this Anti-Degradation Policy and after adequate opportunity for intergovernmental and public participation, that allowing lower water quality is necessary to accommodate overriding State economic or social development; provided

(c) in all cases the Commissioner finds that existing and designated uses will be protected fully, and the discharge is consistent with the hypoxia management actions contained in "*A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound*", dated December 28, 2000.

IV. ANTI-DEGRADATION EVALUATION PROCEDURES FOR CLASS B AND SB WATER RESOURCES

1) Determination of significant lowering of water quality - In the course of an application for a proposed regulated discharge or activity the Commissioner shall determine whether the proposed discharge or activity will result in a significant change in water quality by utilizing all relevant available data and the best professional judgment of Department staff. Factors to be considered in making this determination include, but are not limited to:

(a) expected percent change in each applicable water quality parameter resulting from such regulated discharge or activity;

(b) quality and ecological value of the proposed receiving surface water;

(c) cumulative impact of the proposed discharge or activity on water quality of the proposed receiving surface water, taking into account all other existing regulated discharges and activities therein;

(d) impact of the proposed discharge or activity on aquatic biota and habitat;

(e) eutrophic impacts of the proposed discharge or activity on the proposed receiving water;

(f) impact of the proposed discharge or activity on existing, designated, and potential uses of the proposed receiving surface water; and

(g) the remaining ability of the proposed receiving surface water to assimilate additional regulated discharges and support additional regulated activities if the proposed discharge or activity is approved.

2) Determination that allowing lower water quality is necessary to accommodate overriding economic and social development - If the Commissioner determines that a proposed discharge or activity will significantly lower water quality in a high quality Class B or SB water, he or she shall not issue a permit or certificate unless he or she finds that allowing lower water quality is necessary to accommodate overriding economic and social development which he or she has determined is clearly in the public interest. The Commissioner shall ensure that notwithstanding a lowering of water quality existing and designated uses will be protected fully.

(a) The proposed lowering of water quality will be found to be necessary only if the applicant for the proposed discharge or activity demonstrates to the satisfaction of the Commissioner that:

(i) alternatives to the proposed discharge or activity are not technologically feasible, or

(ii) applicable pollution control alternatives are prohibitively expensive.

(b) The applicant for a proposed discharge or activity that would result in a lowering of water quality in a proposed receiving surface water shall demonstrate to the Commissioner's satisfaction that the following alternatives have been adequately considered:

(i) alternative locations for the proposed discharge or activity;

(ii) reduction in scale of the proposed discharge or activity;

(iii) pollution prevention measures which could eliminate or minimize the effects of the proposed discharge or activity;

(iv) water use or recycle measures which could eliminate or minimize the effects of the discharge or activity;

(v) process changes or alternative technology which could minimize the effects of the proposed discharge or activity

(vi) improved operation and maintenance of existing facilities in order to minimize the effects of the proposed discharge or activity;

(vii) alternative methods of treatment and advanced treatment beyond applicable technology requirements of the Clean Water Act and,

(viii) any other alternative required by the Commissioner to minimize the effects of the proposed discharge or activity.

The applicant for a proposed permit or activity which will cause a lowering of water quality shall demonstrate to the Commissioner's satisfaction the overriding economic or social benefits to the State which will result from the proposed discharge or activity. The applicant shall document the loss or reduction of aquatic life, aquatic habitat including riparian vegetation, passive and active recreational value, and aesthetic value which may result from lower water quality.

3) The Commissioner shall insure that the highest statutory and regulatory requirements be achieved for all new and existing point source discharges and cost-effective and reasonable best management practices for non-point source controls be implemented consistent with Standard 4 of these water Quality Standards.

4) The Commissioner may order correction of any treatment system and abatement of pollution from any permitted discharge as provided for in Section 22a-431 of the Connecticut General Statutes.

5) The Commissioner shall implement this Anti-Degradation Policy by incorporating it into the review of applications for proposed permits, certifications and concurrences as listed in Section II. Compliance with Federal requirements for public participation, contained in the federal Clean Water Act (Title 40 Part 131.12(a)(2)) will be provided by the public notice and hearing requirements of Chapter 440 or 446k of the Connecticut General Statutes, Section 401 of the federal Clean Water Act or Section 307 of the federal Coastal Zone Management Act. Any such notice or notice of a hearing shall include the Commissioner's finding with regard to compliance with this Anti-Degradation Policy.